

AMENDMENTS TO THE CLAIMS

1. (Currently Amended) An inkjet printer for printing ink onto a print medium, comprising:

a head carrier detachably-mounted to a print head having a plurality of ink nozzles arranged in a direction perpendicular to a direction of feeding a print medium;

a print head carrier control circuit communicatively-coupled to the head carrier, wherein the head carrier control circuit provides which drives

means for driving said print head in a shift [[the]] direction that is substantially perpendicular to [[the]] a feeding direction of feeding the print medium; and

a position detection circuit which detects a position of the print medium with respect to said print head; and

a print head control circuit communicatively-coupled to the print head, wherein the head carrier control circuit and the print head control circuit provide which performs printing

means for preventing one or more of the plurality of ink nozzles from becoming clogged by

selectively utilizing a first portion of the plurality of ink nozzles for printing the ink on [[a]] the print medium area whose width is smaller than a maximum print width of said print head by using predetermined ink nozzles of said print head while moving the print medium relative to said print head,

moving moves said print head in the shift direction that is substantially perpendicular to the feeding direction of feeding the print medium via said print head control circuit each time it has performed printing a predetermined number of times while moving the print medium based on the position detected by said position detection circuit, and

selectively utilizing a second portion of the plurality of ink nozzles that is again performs printing on said print area by using ink nozzles which are different at least partly from said first portion of the plurality of predetermined ink nozzles for printing the ink on the print medium.

2. (Currently Amended) The inkjet printer according to claim 1, wherein said print head control circuit provides

means for ~~performs~~ printing the ink on the print medium with the first portion of the plurality of ink nozzles when ~~in a state that a position of said print head in the direction perpendicular to the direction of feeding the print medium is in a first fixed position~~ relative the print medium, wherein ~~moves said print head via said print head~~ carrier control circuit provides

means for moving the head carrier in the ~~shift~~ direction that is substantially perpendicular to the ~~feeding~~ direction of ~~feeding~~ the print medium after the print head had printed the ink on the print medium a each time it has performed printing the predetermined number of times, and wherein said print head control circuit further provides

means for ~~again performs~~ printing the ink on the print medium with the second portion of the plurality of ink nozzles when ~~in a state that~~ said print head is in a second fixed position relative the print medium, wherein the second fixed position is different from the first fixed position.

3. (Currently Amended) The inkjet printer according to claim 1, wherein~~[[:]]~~ said head carrier print-control circuit provides

means for selectively controlling movement of ~~performs a control of moving~~ said print head carrier relative via said print head control circuit from an initial position at which printing on said print medium such that one of the first and second portions of the plurality of ink nozzles may selectively dispose a plurality of character strings substantially arranged in a column that is defined by the ink onto area is performed for a first time to one end of movement along the direction perpendicular to the direction of feeding the print medium as the print medium is moved in the feeding direction while repeatedly performing printing on said print area; and

performs a control of moving said print head via said print head control circuit from said one end of movement to said initial position along the direction perpendicular to the direction of feeding the print medium while repeatedly performing the same printing on said print area.

4. (Currently Amended) The inkjet printer according to claim 1, wherein ~~[[:]]~~ said print head control circuit comprises

a buffer memory and a driver circuit, wherein the buffer memory and driver circuit provide on which a dot pattern, which is objective data to be printed, is expanded; and  
means for selectively controlling ejection of the ink from the plurality of ink nozzles,  
means for selectively controlling which ink nozzles of the plurality of ink nozzles should be used for printing the ink on the print medium, means for selectively controlling which ink nozzles of the plurality of ink nozzles should be used defines one or more of the first and second portions of the plurality of ink nozzles ~~said print head control circuit shifts a position at which the print object dot pattern data is expanded in accordance with movements of said print head.~~

5. (Currently Amended) The inkjet printer according to claim 1, further comprising, ~~wherein said position detection circuit comprises:~~

a central processing unit communicatively coupled to one or more of the head carrier control circuit and the print head control circuit, and

a sensor and an encoder communicatively coupled to the central processing unit, wherein the sensor and encoder provide

means for detecting position of the print medium by detecting ~~which detects a mark that is provided given~~ on the print medium at predetermined intervals in the feeding direction; ~~and an encoder which detects an amount of the print medium being fed.~~

6. (Currently Amended) The inkjet printer according to claim 5, wherein said encoder comprises a slave roller that rotates while also providing

means for ~~which rotates while~~ keeping ~~[[in]]~~ contact with a surface of the print medium, wherein the encoder further provides

means for detecting ~~and detects~~ an angle of rotation of said slave roller.

7. (Currently Amended) A ~~printing method for operating~~ [[by]] an inkjet printer ~~including, for performing printing by using a head carrier detachably-mounted to a print head having a plurality of ink nozzles that print ink onto a print medium, comprising the steps of:~~

~~a printing step of performing printing ink on a print target area width of the print medium, wherein whose width the print target area width of the print medium is less smaller than a maximum print width of the~~ [[a]] print head [[by]], wherein the printing ink step includes

using a first predetermined portion of ink nozzles of the plurality of ink nozzles, [[head]], wherein the first predetermined portion of ink nozzles defines a first selected print width of the print head that is less than the maximum print width of the print head, wherein the first selected print width is substantially the same as the print target area width of the print medium while moving a print medium relative to said print head; and ceasing the printing ink step;

moving the print medium in a feeding direction relative the head carrier;

~~a moving step of detecting that printing has been performed a predetermined number of times, and moving said print head carrier in a direction substantially perpendicular to the feeding~~ [[a]] direction of feeding the print medium[[,]]; and

~~wherein after said print head is moved, printing is performed at said printing step on the print target area on the print medium, by using a second predetermined portion of ink nozzles of the plurality of ink nozzles that which are different at least partly from the first predetermined portion of ink nozzles which were used for printing before the move for~~

further printing ink on the print target area width, wherein the second predetermined portion of ink nozzles defines a second selected print width of the print head that is less than the maximum print width of the print head, wherein the second selected print width is substantially the same as the print target area width of the print medium.

8. (Currently Amended) The printing method according to claim 7, wherein: ~~said printing step comprises a step of performing printing on a specific print position whose width is smaller than the maximum print width of said print head by using predetermined ink nozzles while further~~ said moving the print medium step includes

moving the ~~relative to a head carrier by a predetermined pitch at a time, in a state that a position of said print head in the direction perpendicular to the direction of feeding as the print medium is fixed; and~~

utilizing a head carrier control circuit for said moving step ~~comprises a step of moving said head carrier via said head carrier control circuit in the direction substantially~~ perpendicular to the feeding direction of feeding the print medium.

9. (Currently Amended) The printing method according to claim 7, wherein ~~[[at]]~~ said moving said head carrier step is conducted upon

determining that the printing ink step, ~~said print head is moved each time it is detected that printing has been performed a~~ [[the]] ~~predetermined number of times; and each time said print head is moved at said moving step, printing is performed at said printing step by using ink nozzles which are different at least partly from ink nozzles which were used for printing before the move.~~

10. (Currently Amended) The printing method ~~by an inkjet printer~~ according to claim 7, further comprising the step of

detecting, ~~wherein detection of a relative position of the print medium by~~

utilizing a sensor and an encoder to detect ~~comprises a step of detecting at least one mark given on the print medium at predetermined intervals as the print medium is moved in the feeding direction for determining, and a step of detecting an amount of the print medium being fed in the feeding direction.~~

11. (Currently Amended) An inkjet printer for printing ink onto a print medium, comprising:

a print head having a plurality of ink nozzles ~~arranged in a direction perpendicular to a direction of feeding a print medium; and~~

a print head control circuit means communicatively-coupled to the print head, wherein the print head control circuit provides for driving said print head in the direction perpendicular to the direction of feeding the print medium;

~~position detection means for detecting a position of the print medium with respect to said print head; and~~

means for improving the life of the print head by preventing one or more of the plurality of ink nozzles from becoming clogged by

~~print control means for performing printing on a print area whose width is smaller than a maximum print width of said print head by using a first predetermined portion of ink nozzles of the plurality of ink nozzles of said print head for printing ink on a print target width of the print medium that is less than a maximum width of the print head that is defined by the plurality of ink nozzles,~~

~~ceasing the printing ink step;~~

~~moving the print medium in a feeding direction relative the print head,~~

~~while moving the print medium relative to said print head, moving said print head in a [[the]] direction substantially perpendicular to the feeding direction of feeding the print medium, and via said print head control means each time it has performed printing a predetermined number of times while moving the print medium based on the position detected by said position detection means, and again performing printing on said print area by~~

after moving said print head, using a second predetermined portion of ink nozzles of the plurality of ink nozzles of said print head that which are different at least partly from said first predetermined portion of ink nozzles of the plurality of ink nozzles of said print head for printing ink on the print target width of the print medium.

12. (Currently Amended) A ~~computer program for controlling a computer to implement a~~ printing method that utilizes for performing printing by using a print head having a plurality of ink nozzles, comprising the steps of:

~~a printing step of performing printing ink on a print target area having a whose-width that~~ is ~~less smaller~~ than a maximum print width of ~~the~~ [[a]] print head by

using [[a]] one or more predetermined ink nozzles of the head among a plurality of ink nozzles ~~possessed by said print head while~~ for conducting the printing ink step,  
ceasing the printing ink step,

moving a print medium relative to said print head in a feeding direction, [[;]]

repeating the printing step, ceasing step and moving step until it has been detected  
~~a moving step of detecting that printing ink step~~ has been performed a predetermined number of times, [[and]]

moving said print head in a direction substantially perpendicular to [[a]] the  
feeding direction of ~~feeding~~ the print medium [[;]], and

resuming the a resumed printing step of performing printing ink step on the print  
~~target area on the print medium~~ by using one or more alternative ink nozzles of the  
plurality of ink nozzles that ~~which~~ are different at least partly from said one or more  
predetermined ink nozzles of the plurality of ink nozzles said print head after the print  
head was moved in the direction substantially perpendicular to the feeding direction of  
the print medium.

13. (New) A printing method that utilizes a print head having a plurality of ink nozzles for ejecting ink onto a print medium, wherein the plurality of ink nozzles defines a maximum print width of the print head, wherein the print medium includes a print target width that is less than the maximum print target width of the print head, comprising the steps of:

locating the print head at a first location relative the print medium such that

one or more first ink nozzles of the plurality of ink nozzles are located within the print target width of the print medium, and

one or more second ink nozzles of the plurality of ink nozzles are located outside of the print target width of the print medium, wherein the one or more first ink nozzles are positioned with a potential for ejecting the ink from the print head onto the print medium, wherein the one or more second ink nozzles are not positioned with the potential for ejecting the ink from the print head onto the print medium; and

moving the print head from the first location to a second location that is different from the first location such that

the one or more second ink nozzles are moved from being outside of the print target width to being within the print target width such that the one or more second ink nozzles moved within the print target width are positioned with the potential for ejecting the ink from the print head onto the print medium.

14. (New) The printing method according to claim 13, further comprising the step of

utilizing any of the one or more first and second ink nozzles that are located within the print target width for

printing the ink onto the print medium.

15. (New) The printing method according to claim 14, further comprising the step of

ceasing the printing step, wherein the moving, printing and ceasing steps are repeated for equally utilizing each ink nozzles of the plurality of ink nozzles.

16. (New) The printing method according to claim 15, wherein the repeated moving step results in each ink nozzles of the plurality of ink nozzles being moved from outside of to within the print target width on a substantially equal basis such that each ink nozzle of the plurality of ink nozzles is utilized substantially equally.



17. (New) The printing method according to claim 15, wherein the repeated moving step results in

improving the life of the print head by  
preventing one or more of the plurality of ink nozzles from being infrequently utilized.

18. (New) The printing method according to claim 15, wherein the repeated moving step results in

reducing ink ejection troubles of the print head by  
preventing one or more of the plurality of ink nozzles from being infrequently utilized.

19. (New) The printing method according to claim 15, wherein the repeated moving step results in

reducing the likelihood that one or more of the plurality of ink nozzles become clogged  
by  
preventing one or more of the plurality of ink nozzles from being infrequently utilized.